

IN THE CLAIMS:

- 1 1. (Original) A human/machine interface for a machine vision system having an image
2 element that generates image data based upon a viewed object comprising:
3 a processing element and a memory operatively connected to the image element
4 and including (a) a machine vision tool for performing a machine vision process on the
5 image data and (b) a software process for compressing and reformatting the image data
6 and information from the machine vision tool into a web-browser-compatible form for
7 transmission over a communications interface, interconnected to the processing element,
8 to a human/machine interface device having a display, the web-browser-compatible im-
9 age data and information being adapted for display on the human/machine interface de-
10 vice, and wherein the human/machine interface device is adapted to display web-
11 browser-compatible image data and the information on a plurality of user-selected
12 screens associated with the machine vision tool, and wherein the processing element is
13 adapted to perform a machine vision tool task while the human/machine interface device
14 is disconnected from the communications interface; and
15 wherein the processing element includes a web server and wherein the hu-
16 man/machine interface device comprises a computer having a generic web browser and
17 the screens comprise web pages.
- 1 2. (Original) The human/machine interface as set forth in claim 1 wherein the screens in-
2 clude buttons for selecting predetermined functions for at least one of installing, config-
3 uring, training, monitoring and controlling the machine vision system.
- 1 3. (Original) The human/machine interface as set forth in claim 1 wherein the software
2 process includes a data compression and reformatting process for the image data that
3 causes the image data to be transmitted in compressed form over the communications in-
4 terface.

- 1 4. (Original) A human/machine interface for a machine vision system having an image
2 element that generates image data based upon a viewed object comprising:
3 a processing element and a memory operatively connected to the image element
4 and including (a) a machine vision tool for performing a machine vision process on the
5 image data and (b) a software process for transmitting the image data and information
6 from the machine vision tool over a communications interface, interconnected to the
7 processing element, to a human/machine interface device having a display, and the image
8 data and information being adapted for display on the human/machine interface device,
9 and wherein the human/machine interface device is adapted to display the image data and
10 the information on a plurality of user-selected screens associated with the machine vision
11 tool, and wherein the processing element is adapted to perform a machine vision tool task
12 while the human/machine interface device is disconnected from the communications in-
13 terface; and
14 wherein the human/machine interface device comprises a personal digital assis-
15 tant (PDA).
- 1 5. (Original) The human/machine interface as set forth in claim 4 wherein the communi-
2 cation interface includes support for data transmission to a PDA over one of a wireless
3 link and a cable link.
- 1 6. (Original) The human/machine interface as set forth in claim 4 wherein the hu-
2 man/machine interface device includes a generic machine vision application residing
3 thereon and the processing element is adapted to install a specialized machine vision ap-
4 plication over the communications interface to the human/machine interface device.
- 1 7. (Original) The human/machine interface as set forth in claim 4 wherein the machine
2 vision tool indicates a process that determines an intensity distribution of the image data
3 and that transmits information with respect to the determined intensity distribution, and
4 wherein the human/machine interface device includes a process for displaying, based
5 upon the information, a visual representation of the intensity distribution so as to assist in

6 adjusting at least one of lighting intensity, shutter exposure time, lens aperture, and pa-
7 rameters affecting the intensity distribution in the image data.

1 8. (Original) The human/machine interface as set forth in claim 4 wherein the machine
2 vision tool includes a process that determines a relative degree of focus of the image data
3 and that transmits encoded information with respect to the determined relative degree of
4 focus, and wherein the human/machine interface device includes a process for displaying,
5 based upon the encoded information, a current focus value so as to assist in adjusting fo-
6 cus.

1 9. (Original) The human/machine interface as set forth in claim 8 wherein the current fo-
2 cus value is displayed as a function of time.

1 10. (Original) The human/machine interface as set forth in claim 8 wherein the hu-
2 man/machine interface device includes a display that is insufficient in resolution and re-
3 fresh rate to provide a real time display for adjusting either of focus or aperture of lens of
4 the image element.

1 11. (Original) The human/machine interface as set forth in claim 4 wherein the software
2 process includes a data compression and reformatting process for the image data that
3 causes the image data to be transmitted in compressed form over the communications in-
4 terface.

1 12. (Original) A method for interfacing with a machine vision system having an image
2 element that generates image data based upon a viewed object, the method comprising
3 the steps of:

4 providing a processing element and a memory operatively connected to the image
5 element and including (a) a machine vision tool for performing a machine vision process
6 on the image data and (b) a software process for providing the image data in a web-

7 browser-compatible form and for creating information for constructing interface web
8 pages associated with operation of the machine vision tool;
9 transmitting the image data and information over a communications interface, in-
10 terconnected to the processing element, to a human/machine interface device having a
11 display and a generic web browser application;
12 receiving the image data and information and displaying, on the human machine
13 interface device, the image data and information on a plurality of user-selected screens,
14 each of the screens comprising a web page; and
15 performing, with the processing element, a machine vision tool task while the
16 human/machine interface device is disconnected from the communications interface.

1 13. (Original) The method as set forth in claims 12 wherein further comprising transfer-
2 ring configuration information from the human/machine interface device to the memory
3 over the communications interface.

1 14. (Original) The method as set forth in claim 13 wherein the step of transferring con-
2 figuration information includes providing training information to the memory.

1 15. (Original) The method as set forth in claim 14 wherein the step of displaying includes
2 monitoring a live image acquired by the image element based upon the image data and
3 information.

1 16. (Original) The method as set forth in claim 12 further comprising (a) establishing a
2 link between the human/machine interface device and the communications interface, (b)
3 at least one of installing, configuring, training or monitoring the machine vision system
4 by exchanging information over the link; and (c) removing the link.

1 17. (Original) The method as set forth in claim 16 wherein the step of establishing the
2 link comprises opening web pages on the human/machine interface based upon a web

3 server in the machine vision system that interacts with the communications interface to
4 convert the image data and information into web-based data pockets.

1 18. (Original) The method as set forth in claim 12 further comprising communicating
2 control information to a remote device through the communication interface so as to di-
3 rect a device function in accordance with the predetermined instruction of the machine
4 vision tool.

1 19. (Original) The human/machine interface as set forth in claim 12 wherein the software
2 process includes a data compression and reformatting process for the image data that
3 causes the image data to be transmitted in compressed form over the communications in-
4 terface.

1 20. (Original) A method for interfacing with a machine vision system having an image
2 element that generates image data based upon a viewed object, the method comprising
3 the steps of:
4 providing a processing element and a memory operatively connected to the image
5 element and including (a) a machine vision tool for performing a machine vision process
6 on the image data and (b) a software process for providing the image data in a transmitta-
7 ble form and for creating information for constructing interface screens associated with
8 operation of the machine vision tool;
9 transmitting the compressed and reformatted image data and information over a
10 communications interface, interconnected to the processing element, to a human/machine
11 interface device, the human/machine interface comprising a personal digital assistant
12 (PDA) having a display and a graphical user interface (GUI);
13 receiving the compressed and reformatted image data and information and dis-
14 playing, on the human machine interface device, the compressed and reformatted image
15 data and information on a plurality of user-selected screens associated with the machine
16 vision tool; and

17 performing, with the processing element, a machine vision tool task while the
18 human/machine interface device is disconnected from the communications link.

1 21. (Original) The method as set forth in claim 20 wherein the step of transmitting in-
2 cludes providing the image data and information over one of a wireless link and a cable
3 link.

1 22. (Original) The method as set forth in claim 20 further comprising (a) establishing a
2 link between the human/machine interface device and the communications interface, (b)
3 at least one of installing, configuring, training or monitoring the machine vision system
4 by exchanging information over the link; and (c) removing the link.

1 23. (Original) The method as set forth in claim 20 further comprising transferring a ma-
2 chine vision application from the memory over the link to the human machine interface
3 device and installing the loadable machine vision application on the human/machine in-
4 terface so as to interface with the machine vision system using the loadable machine vi-
5 sion application.

1 24. (Original) The method as set forth in claim 20 further comprising communicating
2 control information to a remote device through the communication interface so as to di-
3 rect a device function in accordance with a predetermined instruction of the machine vi-
4 sion tool.

1 25. (Original) The human/machine interface as set forth in claim 20 further comprising
2 determining, with the machine vision tool, an intensity distribution of the image data and
3 transmitting information with respect to the determined intensity distribution, and dis-
4 playing, based upon the information, a visual representation of the intensity distribution
5 with the human/machine interface device so as to assist in adjusting at least one of light-
6 ing intensity, shutter exposure time, lens aperture, and parameters affecting the intensity
7 distribution in the image data.

1 26. (Original) The human/machine interface as set forth in claim 20 further comprising
2 determining, with the machine vision tool, a relative degree of focus of the image data
3 and transmitting encoded information with respect to the determined relative degree of
4 focus, and displaying, based upon the encoded information, a current focus value with the
5 human/machine interface device so as to assist in adjusting focus.

1 27. (Original) The human/machine interface as set forth in claim 26 wherein the step of
2 displaying the current focus value includes displaying the current focus value as a func-
3 tion of time.

1 28. (Original) The human/machine interface as set forth in claim 20 wherein the software
2 process includes a data compression and reformatting process for the image data that
3 causes the image data to be transmitted in compressed form over the communications in-
4 terface.